

WHAT IS CLAIMED IS:

1. A fixture for holding a gas turbine engine blade having an airfoil extending outward from a shank and a dovetail extending inward from the shank for attaching the blade to a disk of the engine, said dovetail including at least one pair of protrusions extending fore and aft along opposite sides of the blade, each of said protrusions including a pressure face generally facing the airfoil of the blade for engaging the disk to retain the blade in the disk during operation of the engine, said fixture comprising:

a support for receiving the dovetail; and

a clamp mounted adjacent the support for movement between a clamped position in which the clamp engages the dovetail to hold the dovetail against the support thereby holding the blade in the fixture and a released position in which the clamp disengages the dovetail to permit removal of the blade from the fixture.

2. A fixture as set forth in claim 1 wherein the clamp is sized and shaped to engage at least one pair of said pressure faces of the blade to hold the dovetail against the support and thereby to hold the blade in the fixture.

3. A fixture as set forth in claim 2 wherein the support includes opposing surfaces for engaging laterally opposite tips of at least one pair of said protrusions when the dovetail is received in the support.

4. A fixture as set forth in claim 3 wherein the opposing surfaces are substantially planar and angled with respect to each other.

5. A fixture as set forth in claim 4 wherein the blade has at least two pairs of protrusions and the opposing surfaces engage the laterally opposite tips of

each of said pairs of protrusions when the dovetail is received in the support.

5 6. A fixture as set forth in claim 2 wherein the blade includes at least one cooling air passage extending through the blade from an inlet port located at an inboard end of the dovetail and the support includes a seal for sealingly engaging the dovetail to ensure fluid is blown through the inlet port to flow check the blade.

10 7. A fixture as set forth in claim 2 wherein the seal is elastomeric.

8. A fixture as set forth in claim 2 wherein the clamp includes at least one pair of rotatably mounted clamping members.

15 9. A fixture as set forth in claim 8 wherein each of said clamping members includes a lobe adapted to engage one of said pressure faces of the dovetail as the clamping member rotates to hold the dovetail against the support and thereby to hold the blade in the fixture.

20 10. A fixture as set forth in claim 8 further comprising a rotary actuator for driving said clamping members.

11. A fixture as set forth in claim 10 wherein the rotary actuator is a pneumatically powered rotary actuator.

25 12. A fixture as set forth in claim 2 wherein the clamp includes at least one pair of pivotally mounted rocker arms, each of said arms having a first end adapted to engage one of said pressure faces of the dovetail as the arm pivots to hold the dovetail against the support and
30 thereby to hold the blade in the fixture.

13. A fixture as set forth in claim 12 wherein each of said rocker arms includes a slot which receives a mount pin positioned adjacent the support so that said rocker arm is free to slide and pivot on the pin.

5 14. A fixture as set forth in claim 13 wherein the clamp includes a pair of rotatably mounted cranks, each of said cranks being pivotally attached to a second end of one of said rocker arms opposite said first end so that the rocker arms pivots and slides on the corresponding mount
10 pin as the crank rotates.

15. A fixture as set forth in claim 14 further comprising a rotary actuator for driving said cranks.

15 16. A fixture as set forth in claim 15 wherein the rotary actuator is a pneumatically powered rotary actuator.

17. A fixture as set forth in claim 8 further comprising at least one pair of meshed gears operatively connecting said pair of clamping members.